THE MARINE RECORD.

DEVOTED TO COMMERCE, ENGINEERING AND SCIENCE.

$2.00 PER YEAR. ESTABLISHED 1878. 10c. SINGLE COPY.

VOL. XVIII. CLEVELAND, OHIO, MAY 9, 1895. NO. 19

LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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AMERICAN SHIPMASTERS' RULES.

Hon. John Riley, United States consul general at Ottawa, Can., was in Washington this week, and had a conference with Commissioner of Navigation Chamberlain in regard to the adoption of the new "rules of the road," provided for in the Lake Shipmasters' rules. It is very desirable to have the same laws used by both Canadian and United States vessels on the lakes, and it is hoped that the Canadian Parliament, which is now in session, will pass a law adopting the provisions recently enacted by Congress. Mr. Riley has not yet been able to accomplish anything in his official capacity, but will confer with Canadian officials upon his return to Ottawa, and it is hoped that practically the same rules will prevail on all lake tonnage.

HALF WAY MEASURES.

The Secretary of the Navy has finally settled the dispute in the board of naval bureau chiefs over the designs for the six light draft gunboats authorized to be built by the last Congress. Four members of the board reported in favor of twin screw boats without sails, while two members held to the design prepared by the construction bureau, which contemplated single screw, full sail powered vessels.

The secretary has decided to build boats of each type, four with full sail power, and single screw and two with twin screws and without sail power, having only two signaling masts. Work on the plans will be pushed and it is expected the advertisements for proposals will be issued in about a month.

HAY LAKE CHANNEL LIGHTS.

The building of the cribs for the lighting of the Hay Lake channel are well under way. Twelve men are now employed, but the force will be increased to 50 on the arrival of the superintendent of construction for the Light-House Board. The cost of the lighting plant involves the expenditure of between $40,000 and $50,000. Six cribs will be built, two dwellings for light keepers erected, one at the Neebish and the other at the Sailors' Encampment. The dwelling at Whitefish Point will also be remodeled. The cribs will be 24 feet square, and will have wooden towers similar to those already built in the old channel. They will be located as follows: One at Station No. 7, in Lower Hay Lake; Station No. 9, Hay Lake, Station No. 16 at Nine-mile Point; Station No. 17, Upper Hay Lake. Two of the cribs will be used for backing purposes. All of the cribs will be placed on rip-rap five feet in thickness.

GAS BUOYS.

The Light-House Board recognizes the necessity of gas buoys, at certain points on the lakes and made every effort to impress both committees of the last Congress that they were indispensable. Last year Congress appropriated $385,000 for buoyage. The hurricanes of last year and the ice of this winter caused absolute loss of so many ordinary buoys that much of the appropriation must be expended in replacing these and having this in view, the board asked for $450,000. But should gas buoys be bought from, and under this appropriation, then $500,000 would be required. Congress gave only $415,000, or $25,000 less than the board asked for for the regular and ordinary buoyage expenses. The board is ready to supply every possible aid for navigation, yet if funds are not appropriated, they can not comply with the wishes of interested people to make the buoyage system perfect. The secretary of the Light-House Board says that nothwithstanding the limited resources there is a possibility of purchasing six gas buoys for the lakes, if the next Congress are any way liberal.

NAVAL COALING STATIONS.

The recent experience of the squadrons through the waters of the Gulf of Mexico and the Carribean Sea has served to attract the attention of the officials of the Navy Department to the necessity of acquiring at least one or two coaling stations in those waters for the use of the navy.

The difficulty of procuring a sufficient supply of coal at different points and at reasonable prices has indicated the trouble that may be expected when it might be necessary to maintain for long periods of time a number of cruising gunboats in those waters. Such a contingency is being prepared for by the construction of a number of boats calculated for just such service. The source of coal supply in that section are at present largely in British possession. The price is always high in some ports, but it is very much higher in others, being known to reach $15 per ton at Colon at times. Now that the navy has rid itself almost entirely of sail power and the ships rely altogether on steam, the amount of money expended in coal is assuming formidable proportions and the naval officers are using all of their ingenuity to keep down this expense without injury to the service.

The common belief that these coaling stations would be very expensive to acquire, and would require to be strongly fortified to defend them, is without real foundation. Some of the naval officers who have been giving much attention to the subject are confident that the United States could readily arrange for the acquisition of coaling stations from almost any of the countries facing the Gulf of Mexico or the Caribbean Sea at a nominal cost.

In case of war, if the station was near enough to the scene of the hostilities to be necessary, it could be protected by the ships that would be required to use the coal. If it was distant from the scene and necessary to the service at that time it would be left to take its chances, for the enemy would scarcely find it profitable to send ships to capture a coal pile which could be readily replenished at any convenient time.

It is believed that Secretary Herbert is giving this subject attention and that when congress meets again he may recommend to that body that this government be clothed with the necessary power to acquire suitable sites for coaling stations.

COASTING PRIVILEGES.

A paragraph has gone the rounds of the press stating that Hawaiian vessels had been given all the privileges of American vessels, leaving it thus to be inferred that the right to enter the coasting trade had also been granted. One of the U. S. statutes denies the coast trade to all foreign vessels and an act of Congress would have to be passed to secure that privilege to vessels of Hawaii. The report, no doubt, emanated from a department circular issued by the Commissioner of Navigation admitting Hawaiian vessels to enter United States ports without admeasurement or in other words, accepting the tonnage denoted in their own certificates of registry as being substantially the same as the system in use in the United States and equal thereto for all commercial purposes.

NEW TONNAGE.

The following lake built craft were given official numbers by the Bureau of Navigation Treasury Department during the week ending April 27. Steam—Arrow, 365 tons gross, Detroit, Mich. Sail—Standard Oil Co., No. 75 and 76, 794 tons gross, built at West Superior, Wis., and hailing from Chicago.

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

Captain John Weckler, formerly a tug captain, has been appointed vessel despatcher. He is a saloon-keeper, and a well-known politician.

Capt. P. Jeffers is fitting out the schooner Yacht Idler for W. D. Boyce, who has hired her for the summer season from John Cudahy, her owner.

Palmer Cook & Calbick chartered the steamer Onoko for wheat from South Chicago to Erie at 1⅛ cents, the steamer W. H. Wolf for oats to Buffalo at 1 cent.

At the dry dock here the steamer Roanoke is in dock for a new wheel and to have her shaft straightened. The tug Luther Loomis was in dock for stopping leaks and some repairs.

Capt. Peter Hanson, who formerly was in charge of the schooners City of Toledo and Arendal and the steambarges Maggie Marshall and Robert C. Wente, died recently in this city.

Ed. Wertheim, the asbestos manufacturer and engineer supply dealer, has removed from 207-209 Lake street to 55 South Canal street, where he will be pleased to meet his marine patrons.

Captain Gilbert Nelson, last in the schooner Emily B. Maxwell, died on Saturday, after suffering about two years from yellow jaundice. A large number of his old marine friends attended his funeral.

The Anchor Line Dock between Clark street and La Salle avenue has been rebuilt, and the old wooden shanty in which the company formerly had their offices, is being replaced by a brick building of larger dimensions.

Captain Thomas Moore, a well-known and much respected vessel captain, has been appointed chief harbor master at this port. He is a man of good repute, and will devote himself to his duties, honorably and without favor to any class.

The steamer Nyack of the new Hurson Line arrived here from Milwaukee Tuesday on her first trip in connection with the new company. The O. S. Richardson Fueling Co. coaled her up, at O'Connor dock, foot of North Michigan street, with one of their lighters.

At the Chicago Ship Building Company's shipyard, the steamer Selwyn Eddy was in dry dock for repairs to damage done to her bottom by stranding at the Soo Canal. The steamer Kearsarge will go in dock for similar repairs. The steamer Fred. Kelly is being calked all over and receiving a new mast.

John S. Keith & Co. chartered the steamers Thomas Davidson and Veronica and barge Amboy for corn to Buffalo at 1¼ cents, the steamer Schlesinger for wheat to Erie at 1¼ cents, the steamer Sachem, schooner George Sturges and steamer M. H. Boyce for corn to Port Huron at 1 cent the steamer Newyago for wheat to Buffalo at 1⅛ cents.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

The schooner Iron Cliff had 372 bushels of wet wheat.

Capt. Cy. Sinclair is here looking after the wreck of the Fairbank.

The tug Conneaut is having her stern bearings fixed at the Mills dry dock.

The steamer Parnell loaded a full cargo of salt, 12,857 barrels for Chicago.

Canal boatmen have resolved to pay no more tips to lock tenders for swelling boats through the locks.

Capt. Reining has sold the yacht Ismalia to the Buffalo Ship Chandlery Co., and she will be used in delivering goods.

Low water is greatly hampering navigation here. Vesselmen do not expect to see much better water until July.

The wet corn in the C. B. Lockwood, 4,218 bushels, was sold for 34 cents per bushel. The Mecosta had 3,345 bushels which brought half a cent more.

The tug building at the Union dry dock for the Hand & Johnson line will be launched Thursday. She is a duplicate of the tug Fabian, of the Maytham line.

The steamer St. Louis is receiving new steel arches in place of her wooden ones, and her rail will be built up solid preparatory to going into the pulpwood trade.

The Erie Canal opened for business Friday last. Owing to the cutting of rates by the railroads the canal is doing very little business. This will probably not last long, and the canal men hope for better times next fall.

The steamer Pillsbury, Capt. Jackson, made a quick trip between this port and Gladstone. She left Buffalo Saturday before last at 12:30 a. m., and got back Friday evening at 6 o'clock, making the trip in five days, 17 hours and 30 minutes.

Mr. Robert Logan representing the owners and Mr. Joseph R. Oldham the underwriters held a survey on the steamer North-Wind here on Wednesday. The damage was the result of her stranding at the head of Hay Lake Channel on her way down this trip.

Harbor Master Soper is in somewhat of a quandary over the question of landing the excursion boats this summer. He has been directed by the council to provide a landing for them at the foot of Main street, but as the Northern Line steamships will overlap this place when at their dock, all the troubles of last season seem certain to be renewed in an aggravated form.

Owing to the late opening of the season, Buffalo's coal shipments are far behind those of April last season. The coal shipments for the month were 27,040 tons, as compared with 10x2,997 tons a year ago. Besides a large amount of general merchandise, 14,119 barrels of salt and 116,852 barrels of cement were shipped from this port. Grain receipts were 3,729,829 bushels as compared with 9,888,740 bushels and 32,015 barrels of flour, against 467,524 for April, 1894.

In past years, the underwriters figure that the vessels of the lumber fleet have sustained more damage in the Niagara River than anywhere else on the route. This is more than ever true this season, now that the water is so low. Smith, Davis & Co., and some of the other insurance men are said to be strongly in favor of adding slightly to the rate when vessels go down to Tonawanda. It is not probable that any change in the rates will be made this season, but underwriters may decline to insure a boat drawing more than 12 feet of water.

By boycotting the Western, Anchor and Union lines, the western roads have so overloaded the Lackawanna and Lehigh liners that they are carrying much more than their percentages, and laying themselves liable to the fine of $3 per ton according to the new rules of the combination. The Lehigh has already notified Commissioner McCain that it wishes to be relieved of the extra amount. This means that if the other lines are not to be allowed to carry the freight it will be left on the docks where the rail lines have dropped it.

The steamers Ed. Smith No. 2 and George King had their seams calked in the Union dry dock. The steamer Egyptian has been having a leak stopped. The Parnell, which struck a sunken crib when entering the harbor, is out of the dock, after receiving a new forefoot, 50 feet of keel, garboard and planking. The steamer Pearl has been seized under a libel filed against the boat for $8,000. She will probably be released under bond before this item appears in print. The claim is for money loaned to the Crystal Beach Co. last season.

The steamer North West will leave here on Friday, May 24, for a trip to Cleveland and return. The management are giving a complimentary excursion to the passenger and ticket men of the various railroads. Saturday will be spent in Cleveland, the steamer returning to Buffalo Sunday morning. The North West will go to Chicago later and take a party from that city to Duluth, leaving Chicago June 7. The party will return by rail to Chicago, and the North West will leave Duluth Monday, June 11, on her first regular trip for the season. The North Land will leave Buffalo on her first regular trip June 11.

DULUTH AND SUPERIOR.

Special Correspondence to The Marine Record.

The schooner H. H. Emilie has been libeled in about $500, wages claim.

The Inman tugs Pathfinder and Williams have been undergoing bottom repairs. The Williams has also a new wheel.

The Canadian steamers which will compose the Duluth & Montreal Line, are the Myles and Sir. S. L. Tilley, of 1,200 tons each, and the City of Owen Sound, of 800 tons.

The shoal which formed in Portage Lake canal opposite the light-house, during the winter, has been dredged out. Three of Williams, Daugherty & Williams' dredges are at work at the entrance to the canal, but vessels can easily make the canal by bearing a trifle to the eastward of the center line.

W. W. J. Croze will have charge of the engineering department of the Canton mine. This property is owned by the Minnesota Iron Co. It promises to develop into one of the best mines on the Mesaba, although it has been opened by the old underground, and not by the "milling" or steam shovel systems.

The new merchandise dock on Allouez Bay, Lake Superior, work on which will soon begin, will be the largest dock west of Cleveland. The dock proper will be 1,900 feet long by 380 feet wide, and will have a roof 1,500 feet long and 280 feet wide. Four hundred men will be given employment on the job all season, by which time it will be finished. It will require 4,000,000 feet of timber and the cost will be $80,000.

PORT HURON, MICH.

Special Correspondence to The Marine Record.

The little steamer Douglas has arrived from Green Bay, and is running on the Detroit-Alpena route.

The new river steamer Unique made the run from Detroit to this city Monday afternoon in four hours and five minutes. Tuesday morning she made the run from this city to St. Clair, 12 miles, in 31 minutes.

The large derrick at the Wolverine dry dock carried away on Monday while men were hoisting the boilers out of the steamer Sparta. No one was injured in the crash, but the boilers fell back into the hold with great force and injured the hull of the boat.

Capt. Harry Richardson will stay ashore this season and look after the lumber fleet of F. W. Gilchrist in Buffalo and Tonawanda. There will be four Gilchrist tows this season, three of which will come here. The Viking, Capt. Doner, with the Maxwell and Tilden; the S. C. Hall, Capt. Hamilton, with the Sam Flint and Nellie Mason; the Norseman (formerly the Canadian Enterprise.) Capt. Stewart with the Ida Keith and Unadilla. The Garden City tow will trade to Lake Ontario as usual. None of them has any regular season's business yet.

As a large wooden propeller Maurice B. Grover, of the Bradley Transportation Co., Cleveland, was rounding to in the river off Clark's dock, Sarnia, Tuesday afternoon, she struck the dock with terrific force making a complete wreck of it for a distance of about thirty feet. The warehouse, which is but a few feet north of where the boat struck, was considerably damaged by the shock of the collision. A large amount of the coal which was on the dock at the time dropped into the river. The timbers punched two small holes in the starboard bow of the boat. The damage to the dock is estimated at between $1,000 and $1,200.

DETROIT, MICH.

Special Correspondence to The Marine Record.

The steamer Wyandotte is being fitted out for the season's business.

The steamer Merida is having her machinery and boilers repaired at the upper dry dock.

Coal and ore contracts are being insured on blanket contracts at 16 and 18 cents per $100.

The new Eddy boat which Wheeler & Co. will build at Bay City, will be a duplicate of the new J. J. McWilliams.

The new steamer Argo, property of Fisher & Wilson and C. R. Jones & Co., of Cleveland, has left on her maiden trip for lumber.

It is hinted that the steamer Samuel F. Hodge is to be put in the Duluth-Ogdensburg line, which was started last year with the J. C. Ford, Saginaw Valley und Ohio.

The steamer Maud Preston was offered for sale last Friday by the United States marshal. Only $300 was bid, and the sale was not closed. The claim on the libel is $6000.

The Port Lawrence Steam Navigation Company now own the steamer Dove, Mr. Arthur Klauser having sold a part of his interest in her to Capt. Frank Wetmore, of Perrysburg; Engineer Irving Hone and others. The Dove has received a new cylinder and boiler, and a force of carpenters is now at work on her to fit her up in the best possible shape. She will be put on the Toledo and Monroe route, and will make two trips a day. She is officered as follows: Captain, Frank Wetmore; clerk, George Leibius; engineer, Irving Hone. She will make her first trip on Memorial day, May 30.

The steamer Schoolcraft is at the Detroit dry dock having a new Scotch type boiler put in. It is 12 feet 3 inches in diameter by 11 feet 6 inches long, with two

42-inch furnaces. Her old boiler will be placed in the Toledo.

The building of the steamer for the Cleveland & Buffalo line will soon begin at Wyandotte. The revised contract embodies several changes from the original plan, which will somewhat increase the cost. F. E. Kirby is now placing orders for the steel material.

The tug Stickney is having a new wheel put in at Oades' shipyard. It is a double-sweep wheel, cast at the foundry of F. Kahl & Co. on St. Aubin avenue. The new device, it is claimed, gives more power and speed to the tug, and a trial trip is looked for with interest by tug owners.

The firm of Parker & Millen, of this port, are the greatest benefactors to lake underwriters that we have ever had. The firm control the wrecking tugs Favorite, Saginaw and Wales, and however dangerous or arduous the wrecking task may be, the charges are always at cost and down to rock bottom figures.

The new steamer building at Wheeler's West Bay City yard for the Stephenson Lumber Co. will be named I. Watson Stephenson. The steamer Metropolis which is being rebuilt at Wheeler & Co.'s Bay City yard for the Toledo and Put-in-Bay route, will be finished in about three weeks. There will remain only ten staterooms. Capt. Ira F. Holt, of Detroit, is superintending the work.

The pilot of the steamer New York is credited here with deliberately running down a row boat containing Harbor-Master McRae and his assistants who were engaged grappling for two sunken bodies on the river here Monday. No lives were lost, but the harbor master had a narrow escape as he is not a swimmer. It is further stated the pilot remarked that he did not have to alter his helm to keep clear of row boats.

The Detroit Bridge and Iron Works have constructed the steel gates for the new "Soo" canal locks. They are the largest gates of steel in the world. Each leaf has two air pumps and two air chambers, situated near the bottom of the gates, and two water chambers a few feet above the center. Air pumps are to be operated by hand from the top of the gates. The air and water chambers are used in conjunction to preserve the equilibrum of the gates, and to prevent any undue strain on the quoin posts. The top of the gates will be provided with a wooden walk for foot travel.

The Lake Erie & Detroit River R. R. Co., lessees of the London & Port Stanley line, are said to be negotiating for a steamer which they will place on the Cleveland-Port Stanley route.

The test of the wrecker Swain's electric plant shows that it works perfectly. Beside the powerful searchlight, the tugs side lights will also be illuminated by electricity. She will leave immediately for her station.

SANDUSKY. O.

Special Correspondence to The Marine Record.

The water here is nearly one foot below the normal level, but vessels entering this harbor have experienced no difficulty.

Sandusky people are highly pleased with the nice little steamer Arrow. She easily reels of 16 miles per hour, and will do much better later on. She carries her 800 passengers as steadily as could be desired.

Plans for the foundation for the Sandusky Bay range light station have been completed and those for the buildings are now being made. It is expected that the work will be completed about Sept. 30, 1896. The lights will be stationed at the mouth of the bay on a range with the Baltimore & Ohio docks.

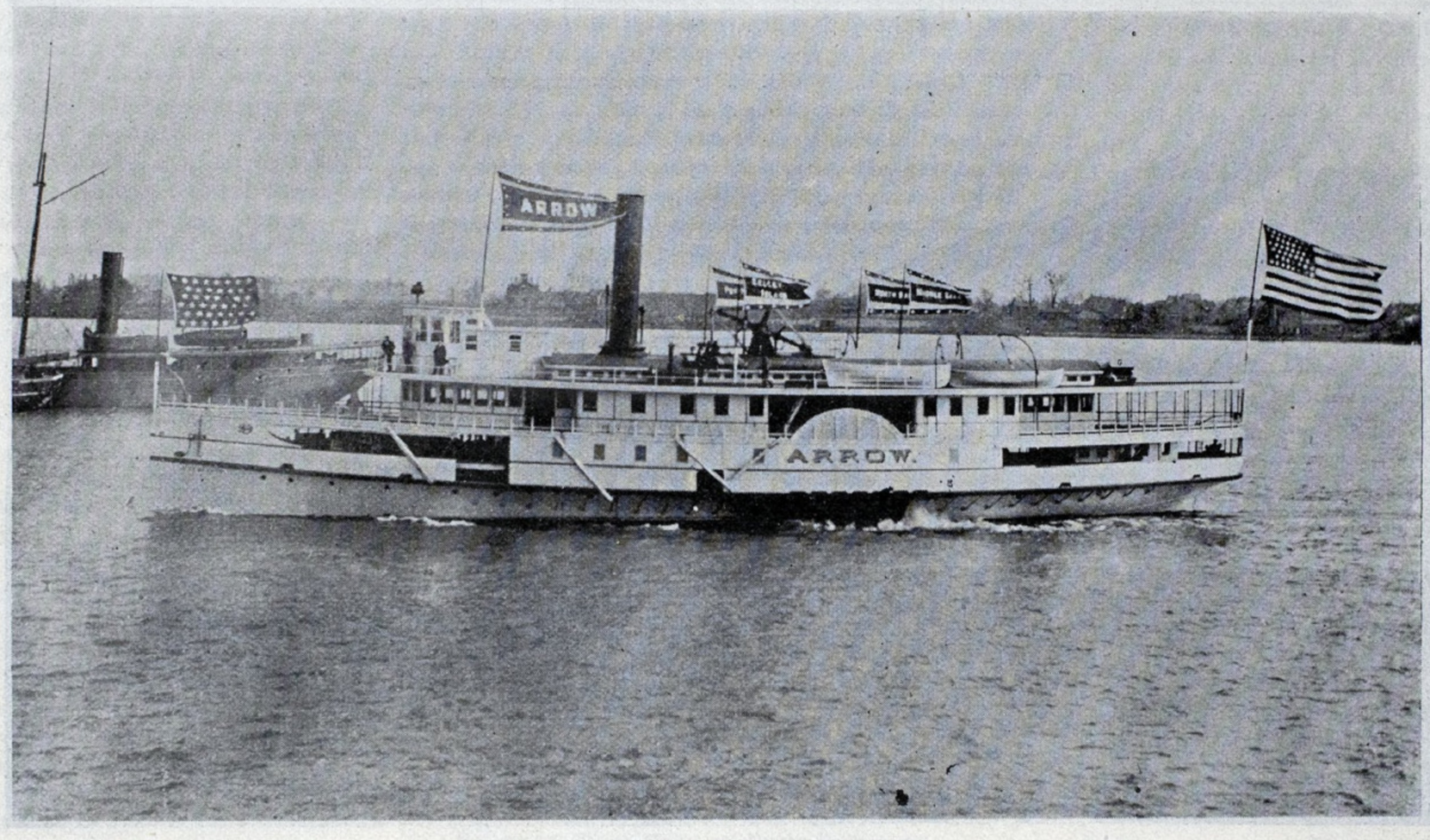
STEEL PASSENGER STEAMER ARROW.

(ILLUSTRATED)

There has been added this week to the Lake Erie fleet of passenger steamers a handsome craft built by the Detroit Dry Dock Co., at Wyandotte to the order of the Sandusky Island Steamboat Co., A. Wehrle, Jr., president, to be placed in the local trade.

On her trial trip last week the Arrow reeled off 16 miles an hour and with the improvements put upon her engines and boilers which were formerly in the passenger boat City of Sandusky, it is confidently expected that the new boat will better the time made on her trial trip by at least one mile an hour.

By reference to the cut it will be seen that the Arrow is modeled after the lines of the Frank E. Kirby, a steamer generally credited with being the fastest passenger boat on the lakes, and a regular liner between Detroit and Toledo. She also was built by the Detroit Dry Dock Co., and named in honor of their consulting engineer. The Arrow is licensed to carry 800 passengers and is fitted up in the finest possible manner, including all modern conveniences for the comfort of passengers.



STEEL PASSENGER STEAMER "ARROW."

The company managing the new steamer are thoroughly acquainted with the needs of the trade and as there has been an excellent business worked up between Sandusky and the islands, the success of this speedy passenger craft is assured.

CLEVELAND. O.

Special Correspondence to The Marine Record.

F. W. Wheeler, the West Bay City shipbuilder, and Capt. John Shaw were in the city on Tuesday.

A survey will be held today on the steamer I. W. Nicholas at the Shipowners' dry dock. The surveyors are Thomas Bristow and Capt. Sinclair of Chicago.

Charles H. Keep, Esq., secretary of the Lake Carriers' Association and Capt. J. J. H. Brown were here from Buffalo this week, also Capt. James Millen of Detroit.

The new steel schooner Malta, built to the order of the Minnesota Line by the Chicago Ship Building Co., discharged her first cargo here this week. She carried 2,780 tons on 13 feet 8 inches draft.

Mr. Robert Logan held a survey on the steamer Parks Foster in the Cleveland Dry Dock on Tuesday. About thirteen plates will be taken off and it is expected that she will be out of dock on Saturday.

The steel schooner yacht Priscilla, Capt. Henry Baker is now on her way to Cleveland from New York. The Priscilla was built to defend the America's cup in 1885 and she will be a valuable acquisition to the Cleveland yacht fleet.

The Carp River Mining Co. has been organized by Cleveland men to develop a copper mine in Ontonagon county, Mich., near Lake Superior. The officers are T. D. Lindsey, president; W. L. Laffer, secretary; C. D. Everett, S. O'Dell, H. D. Whittlesey, directors.

Considering the low stage of water now prevailing, the new steel steamer Globe has made a record by arriving at Ashtabula from Escanaba on Tuesday with a cargo of 3,200 tons of ore. If there is any money to be earned this season large carriers on a light draft are the ones to secure it.

A fleet of Cleveland owned vessels trimmed ore cargoes at Marquette this week with their own crews. The Minnesota Steamship Co. have made the attempt to carry iron ore without any trimming, and if any vessels can stand the work it is surely the Minnesota fleet, all of which are large modern built steel ships.

Some delay has been experienced at the yards of the Globe Iron Works Co., owing to a lack of promptness in forwarding steel from Pittsburg, but work is now starting up briskly and the fleet of steel canal boats, as well as the large steel schooner for which a contract was placed some time ago, will be turned out in short order. The steamer George Stone collided with and sunk her consort the schooner S. H. Kimball off Point Aux Barques on Wednesday morning. The schooner foundered in deep water a few minutes after the collision but no lives were lost. Both vessels belonged to the Bradley fleet. The sunken schooner was classed A 2 and valued at $5,000.

Several large steamers grounding within a few hours of each other at the entrance to Hay Lake channel, and receiving more or less damage, is said to have been caused through inefficient buoyage. If these casualties occurred on account of a lack of the ordinary aids to navigation, the Lake Carriers' Association cannot too strongly call the attention of the light-house service to the needs of the locality.

A meeting of the executive and fuel committees of the Lake Carriers' Association was held in the offices of Capt. James Corrigan on Wednesday, and all the members present felt certain that the fueling abuse at Buffalo had or soon would be entirely done away with. A resolution was adopted instructing secretary Keep to prepare a circular letter to be mailed to all vessel owners whether members of the association or not, urging them to make arrangements at once for all the fuel they may require at Buffalo this season, with fueling firms that have no connection with the hard coal shippers and to advise their Buffalo agents to that effect. The question of coal rates from Buffalo was also informally discussed and some very decided and emphatic opinions were expressed that instead of taking 20 to 25 cents for coal the owners might just as well have a higher and a living rate if they would only decide to take it. Another subject discussed was the misguiding buoys in St. Mary's River. The secretary was directed to take up the matter with the proper government authorities and secure if possible an efficient system of buoys in the Sault.

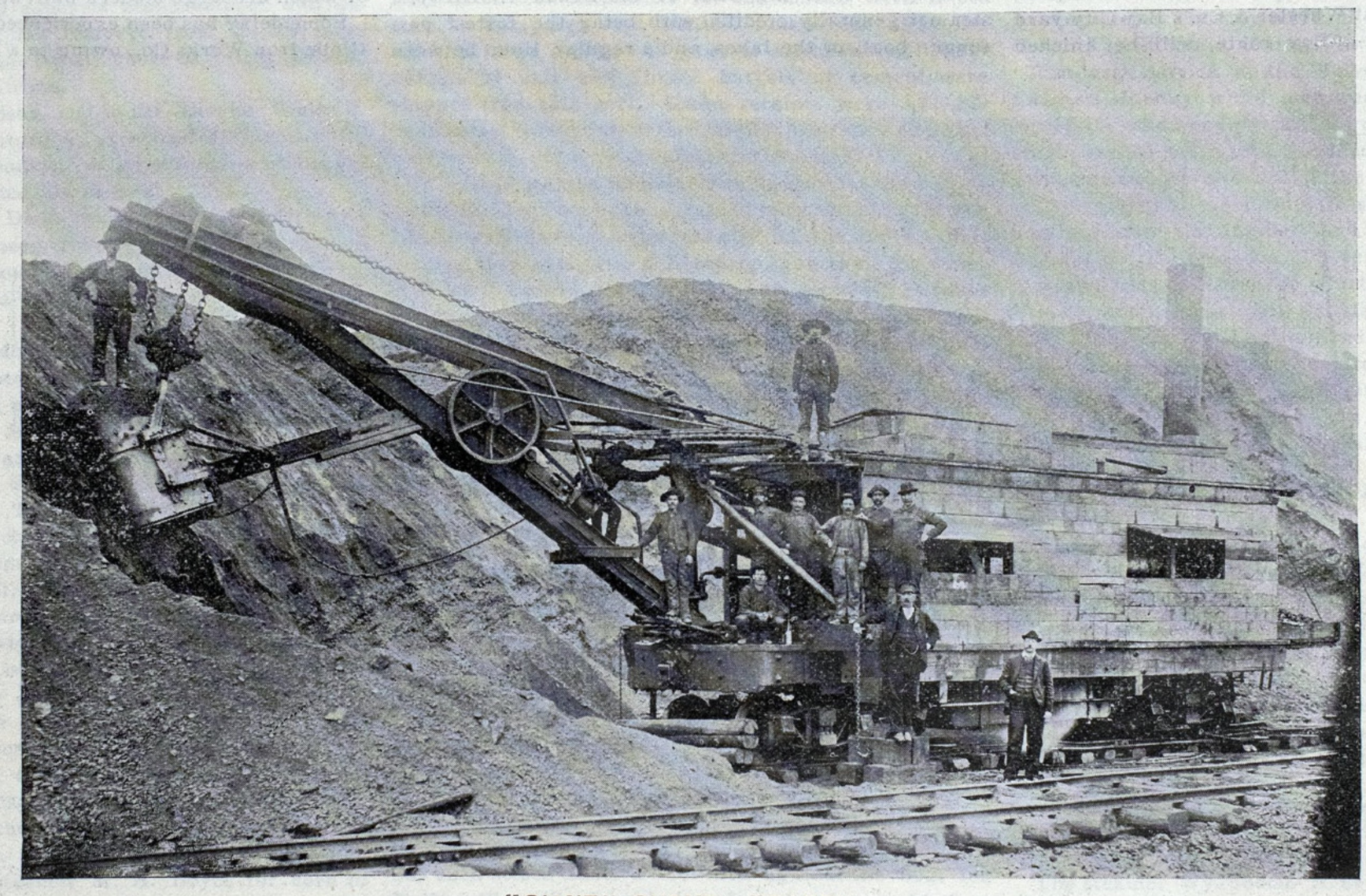
MINING ORE ON THE GOGEBIC RANGE.

(ILLUSTRATED.)

Vast changes have taken place in mining ore in the Lake Superior region during the past few years, and the days of pick and shovel, hand labor tediousness, has been entirely supplanted by the use of steam.

The steam shovel herewith illustrated has been at work for some time at the Penokee and Gogebic Consolidated Mines and as a guarantee is given with all of the Vulcan Iron Works machines this shovel was warranted to handle 2500 tons of iron ore in ten hours, yet a record test made before the final acceptanc of the machine showed the gratifying volume of 4250 tons of ore moved in the above time. In loading ore from the stock piles into railroad cars for transportation to a shipping point as well as for all similar purposes the steam shovel is now an economical necessity. In all steam shovels there are but three important movements, i. e., hoisting the dipper, forcing the dipper and swinging the crane and it is between these movements that valuable time may be lost, if the mechanism of the shovel is not properly adjusted and capable of doing steady successful work. The Vulcan Iron Works Co., Toledo, O., in their manufacture of steam shovels and dredges, lay claim to being a little ahead of the times with improvements. They have been engaged in the business for many years and have a force of experienced mechanics in their employ skilled in all the details of dredge and steam shovel building so that nothing but the best workmanship is sent out of their shops.

Although the cost of standard steam dredges may be quoted as ranging from $3,500 up to $18,000 and steam shovels from $4,500 to $10,000 yet the Vulcan Iron Works Co. have furnished hundreds of these machines to extensive industries in almost every state of the union and their orders are increasing as steam takes the place of manual labor and economy of production is demanded.



"GIANT" SHOVEL "TILDEN."

STRANDINGS.

Besides the unusual number of groundings, such as the case of Selwyn Eddy, Kearsarge, North Wind and Northern Wave through a low stage of water in the rivers and misplaced or inferior buoys in Hay Lake Channel, there has been some singular cases of strandings during the past week, involving a great expense to owners and underwriters through detention, repairs and jettisoned cargo.

Among the most notable strandings of high-classed tonnage was the steamer Parks Foster on Poverty Island, Lake Michigan; I. W. Nicholas on Caribou Island, Lake Superior; A. McVittie in Hammond's Bay, Lake Huron, and the A. A. Parker on North Manitou Island, Lake Michigan.

THE USE OF BALLOONS AT SEA.

The proceedings of the United States Naval Institute contain some interesting details which were communicated to the *France Aerienne* by Col. Nicholas d'Orloff, concerning the search made from a captive balloon to try and discover the whereabouts of the ill-fated Russian warship, Rusalka, which foundered with all hands in a storm in the Gulf of Finland. The transport Samoyede was fitted up to facilitate the ascent of the balloon. The expedition was under charge of an officer and 25 soldiers of the acrostatic park of St. Petersburg. For 19 days the Samoyede was towed out from Helsingfors, Russia, every morning and towed back at night.

The balloon employed had a capacity of about 20,000 cubic feet; it ascended to altitudes varying from 656 to 1,443 feet; with a head wind it was towed at a rate of 2¼ knots; with a favorable wind the speed was sometimes increased to 6¾ knots per hour. Two observers were constantly in the car and were relieved every three hours. Glasses were not used, as it was found that the naked eye could descern objects at the bottom of the sea much better than when artificial aids were employed.

The conclusions arrived at were as follows: That at a height of 1,300 feet it was not posssble to see the bottom of the sea to any great depth, in consequence of the impediments to vision offered by the color of the water and of the bottom. With a favorable light, rocks and sand banks were clearly defined at depths of from 19 to 23 ft. Larger sand banks could be seen according to the color of the water at a depth of 40 ft.

Observations from a captive balloon are more easily carried out at sea than on land, because the air currents are more uniform and are not so subject to sudden changes. Vessels can be distinguished perfectly, and there is no difficulty in recognizing whether they are merchantmen or men-of-war. Colonel d'Orloff concludes that captive balloons would be of great utility as observatories to a fleet, enabling the officers to reconnoitre the entrancs of unknown harbors, and for ascertaining the exact position of forts, batteries, and other defences. In time of peace the balloons could be used in hydrographical researches.

WATER AS A CONDUCTOR.

The fact that water can be made part of an electric circuit has been demonstrated by numerous experiments. A practical use of this knowledge was made a short time ago by a Kansas college professor between the Scotland lightship and Sandy Hook at the entrance to New York. It may be remembered that when the fact that messages could be transmitted in this way was first made known sanguine electricians conceived the idea of telegraphing across the Atlantic without the aid of a cable and devised plans for telegraphic communication between passing ships and between ships at sea and stations on shore. All these schemes were in advance of the present state of scientific knowledge, but he would be a little rash to advocate or attempt to maintain their impossibility in the near future.

THE CHICAGO DRAINAGE CANAL.

The Toledo produce exchange has adopted a memorial giving expression "to the solicitude very generally entertained by western commercial men, and in fact, by all interests east and west, concerning the effect of the water level of Lake Michigan and indirectly upon Lakes Huron and Erie, of the large volume of water to be drawn from the former lake by means of the Chicago drainage canal."

The exchange asks that the secretary of war appoint a committee of engineers to examine into the matter and finally suggests an investigation by engineers of a dam across the Niagara River, at a suitable point, and its effect in preserving or deepening the water of the lakes.

The following resolutions have also been adopted by the board of directors of the Chicago board of trade.

"Whereas Chicago is engaged in carrying out with unexampled energy and dispatch the greatest enterprise yet undertaken on this continent, and through the construction of her sanitary and ship canal will invest two-thirds of the cost of a navigable waterway for vessels drawing fourteen feet of water from Lake Michigan to the Mississippi River, and provide a harbor for lake vessels of the deepest draft and adequate for ocean steamships, and through said channel and the Desplaines and Illinois Rivers will contribute a substantial volume of water for the material improvement of the Mississippi River, all without expense of the general government, and

"Whereas this undertaking is to be commended on account of its paramount importance to the entire lake region in opening up a route to the Mississippi valley, and through the same to the Gulf of Mexico, and Chicago's efforts in this matter deserve the cordial co-operation of all the cities of the Great Lakes and the states bordering thereon and the material support of the general government, in order that a route of the greatest practible capacity may be speedily developed from the lakes to the gulf, and

"Whereas all lake interests are likewise concerned in the early carrying out of a project for ocean navigation between the several lakes and thence to the Atlantic seaboard, the investigation of which has been provided for through a commission authorized by congress, and

"Whereas any project for deep water through the connecting shallows between the lakes and thence to the sea demands the careful consideration of the effects of the levels of the several lakes and measures for remedying the same, and likewise any project for deep water to the Gulf of Mexico involves considerations of the volume of water that may be taken from the lakes without material injury to any lake interest.

"Therefore be it resolved that the general government is hereby requested, through suitable action in Congress, to provide for the full and comprehensive investigation of the outflow of the several lakes under all conditions in order to determine,

"1. What volume may be safely drawn from the lakes in aid of the low water improvement of the Mississippi river and what works will be required, if any, to enable the maximum volume feasible to be turned in that direction.

"2. What works should be undertaken, if any, to maintain the level of the several lakes and the depths in the harbors of the same in connection with channels adequate in depth and width for ocean navigation through the connecting shallows and to the Atlantic seaboard.

"3. How far it may be feasible to maintain and control the levels of Lakes Erie and Ontario at or near high water mark, and to use Lake Superior as a reser voir to feed the other lakes at or near low water, and

"Further, that all of the above objects are of supreme importance and call for the most accurate data as to fluctuations of level and variations in discharge, which should be provided as soon as possible."

A RIVER POSTAL SERVICE AT DETROIT.

For some years past the question of inaugurating an official marine post office service at Detroit has been talked about and the project has been looked upon generally as a step in the right direction. The postmaster at Detroit favors the installation of such an office and the Free Press in touching on the subject very pertinently, puts the question in the following manner:

"The number of persons employed upon the vessels constantly passing Detroit are equal in number to the population of a good-sized city, and they are certainly entitled to the best mail service that can be given them Under the existing circumstances they are obliged to depend chiefly on receiving their mail through the offices of those owning the vessels, which must be unsatisfactory at best, and especially so to the men who are changing from one vessel to another at almost every port on the lakes. Under the system proposed by Detroit's postmaster, such persons would receive their mail, no matter on what boat they might pass Detroit. It is natural that in an attempted innovation such as is proposed, some opposition should be encountered. It is claimed by the friends of the scheme that those inimical to it are interested in the present service that is being given, and therefore opposed to a change from selfish reasons. The postmaster is in receipt of a number of letters applauding the movement, and urging its adoption. It would be well under the circumstances for vesselmen and others directly interested to make known their views on the subject more fully that the prevailing sentiment may be definitely ascertained. The postmaster has moved in the matter with a conviction that the service would be greatly improved by the adoption of his plan, and those who are to be served should not permit themselves to be mis-represented, should there be any disposition to that end."

Thousands of letters are delivered every season free of cost by the Westcott Marine reporting bureau. It is generally known that any letters addressed to Capt. Westcott will be placed on board the vessel at the earliest opportunity and the relatives and friends of those sailing have availed themselves very liberally of this privilege.

Of course there ought to be a general expression of opinion and the entire matter pro and con carefully weighed in the balance of public opinion irrespective of any or all private interests which might be vitiated by the installation of the service if the departure is recommended. The service is now gratuitous and therefore unofficial, it is also expensive and very dangerous for a small boat to approach large steamers going at a great speed, yet in conjunction with other business mail has generally been delivered accurately and promptly by the river reporters and this more particularly so of late years.

On the whole it would appear that the postmaster at Detroit was working towards a worthy end and we can see no reason at this time why a properly organized river postal service would not be a good thing for Detroit.

RETALIATORY.

Considering the aggressive action taken against Canadian labor at several lake ports though in many instances the cases were of the most paltry sort, it is not surprising that a retaliatory element is gaining ground in Canada and an Alien Contract Labor Law is soon likely to be enforced as the Dominion Government has been petitioned to enact legislation, which will prevent American citizens from competing in the Canadian labor market. Although there are but few Americans gaining a livelihood in Canada, the clauses of the intended bill shows the spirit in which the Canadians regard the law of deportation. The bill presents many of the clauses contained in the American Alien Contract Labor Laws, providing that no contracts previous to his arrival in the Dominion, shall be entered into with an alien.

"The master of any vessel who shall knowingly bring within the Dominion of Canada on any such vessel and land or permit to be landed from any foreign port or place any alien, laborer, mechanic or artisan who previous to embarkation on such vessel had entered into contract or agreement, express or implied, to perform labor or service in Canada, shall be deemed guilty of a misdemeanor and on conviction thereof shall be punished by a fine of not more than $500 for each and every such alien, laborer, mechanic or artisan so brought, and may also be imprisoned for a term not exceeding six months at hard labor."

"The Collector of Customs at any port in Canada, in case he shall be satisfied that an immigrant has been allowed to land in Canada contrary to the prohibition of this act, shall cause such imigrant, with the period of one year after landing or entry, to be taken into custody and returned to the country from whence he came at the expense of the owner of the immigrating vessel, or if entered from an adjoining country at the expense of the person previously contracting for the services.

There are the usual exceptions for professional and skilled labor, etc., but the bill on the whole appears to be quite as inclusive as the United States Legislation on the subject.

BOAT LOWERING APPARATUS.

The North German Lloyds taught a lesson by the slowness of lowering the life boats when the Elbe foundered, is experimenting with a boat which it is said can be lowered in fifteen seconds. By an iron rod the two davits are connected so that they remain the same distance apart and may be turned in any direction. To the after davit is attached a cogwheel moved by an endless screw, and a fly-wheel with a handle to it. The davit tackle falls are of the old style. The eyebolts in the bottom of the boat are fastened to a rod with arms moved by a lever. When the boat is placed in the chocks inboard one movement of the lever closes all the lashings and fastens the boat to the blocks. In getting the boat out one movement of the lever and several revolutions of the flywheel are all that is necessary. By this means the boat is swung over the side and the operation of lowering proceeds in the usual way. The company has purchased the sole right to use the device and will equip all their steamers with it.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—MICHIGAN.

MUSKEGON LAKE BEACON LIGHT—Notice is hereby given that, on or about May 10, 1895, a fixed red lantern light will be established, 25 feet above lake level, on a post in line with the two pierhead lights, and at the E. extremity of the boom piling on the N. side of the inner entrance to Muskegon Lake E. side of Lake Michigan.

By order of the Light-House Board:

JOHN G. WALKER,
Rear-Admiral U. S. Navy, Chairman.

OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., May 1, 1895.

1. BUOYS IN EAST END OF LAKE SUPERIOR.

The following buoys were placed by the Canadian government, in Canadian waters in the east end of Lake Superior, on the 6th September last, and will hereafter be maintained in position during the season of navigation each year:

1. A red wooden spar buoy moored in two fathoms water on the edge of the shoal about a mile south of Gros Cap, opposite Iroquois Point. This shoal is about ½ mile long with about 2½ feet water on it.

2. A red wooden spar buoy moored in 2½ fathoms water on the N. W. edge of the shoal between Parisian Island and Sandy Islands.

3. A red wooden spar buoy moored in 2 fathoms water on the south extremity of the shoal off Corbay Point.

4. A steel bell buoy painted red, moored in five fathoms, off the southwest edge of Pancake Shoal. Lat. N. 46° 54′ 30″ Long. W. 84° 47′ 45″. Pancake shoal has only 4 to 6 feet on it and is of considerable extent. The buoy is rung automatically by its motion on the waves.

5. A red wooden spar buoy moored in 2½ fathoms on the west edge of a shoal about 4 miles north of Coppermine Point.

6. A red wooden spar buoy moored in 2½ fathoms on the west edge of the shoal between Point aux Mines and Montreal Island, described in part 3 of Notice to Mariners No. 9 of 1894.

WM. SMITH,
Deputy Minister of Marine and Fisheries.

Department of Marine and Fisheries,
Ottawa, Canada, 25th April, 1895.

ABSTRACT OF BIDS.

P. M. Church & Co., of Sault Ste. Marie, submitted the lowest proposals for hardware to be used by the government in the operating and care of St. Mary's Falls Canal, and the work on the 20 and 21-foot channel near the "Soo." The bids opened by Gen. O. M. Poe, are as follows:

NO. 1.

P. M. Church & Co.	$ 983.20
Ferguson Hardware Co.	983.64
Wood & Thœnen	1,091.12

NO. 2.

P. M. Church & Co	$1,359.97
Ferguson Hardware Co.	1,442.60
Wood & Thœnen	1,509.54
J. T. Wing & Co	1,654.05

NO. 3.

P. M. Church & Co.	$506.14
Ferguson Hardware Co	508.88
Wood & Thœnen	584.39

NO. 4.

P. M. Church & Co.	$836.32
Ferguson Hardware Co.	879.12

The contracts will be awarded from Washington. As P. M. Church & Co. were the lowest bidders on all numbers and they are a responsible firm, it is a foregone conclusion that their terms will be accepted.

PROPOSALS FOR DREDGING.

Abstract of proposals for dredging Cheboygan Harbor, Saginaw River, above Bay City, and bar at mouth of Saginaw River, Mich., received in response to advertisement dated April 12, 1895, and opened May 2, 1895, by Lieut. Col. G. J. Lydecker, corps of engineers:

Cheboygan Harbor, Mich., per cubic yard.—Hingston & Woods, Buffalo, N. Y., .24; Carkin, Stickney & Cram, East Saginaw, Mich., .35; Christopher H. Starke, Milwaukee, Wis., .14; C. E. Mitchell & Co., Ludington, Mich., .12 9-10.

Saginaw River, Mich., above Bay City, per cubic yard.—Charles H. Hubbell, East Tawas, Mich., .45; Hingston & Woods, Buffalo, N. Y., .30; Carkin, Stickney & Cram, East Saginaw, Mich., .34; Bay City Dredging Co., Bay City, Mich., .33⅓.

Bar at mouth of Saginaw River, Mich., per cubic yard.—Charles H. Hubbell, East Tawas, Mich., .35; Hingston & Woods, Buffalo, N. Y., .44; Carkin, Stickney & Cram, East Saginaw, Mich, .33; Christopher H. Starke, Milwaukee, Wis., .35; Racine Dredge Co., Racine, Wis., .41; Bay City Dredging Co., Bay City, Mich., .50; Edmund Hall, Detroit, Mich., .23.

COMPARATIVE STATEMENT OF COMMERCE EAST AND WEST BOUND THROUGH ST. MARY'S FALLS CANAL MICHIGAN.

FOR MONTH OF APRIL. SEASONS OF 1894, 1895.

EAST BOUND.

Item.	Designation.	Season of 1894.	Season of 1895.
Copper	Net tons	650	665
Corn	Bushels	163,300	
Building stone	Net tons		
Flour	Barrels	302,480	36,900
Iron ore	Net tons	56,501	
Iron pig	" "		
Lumber	M. ft. B. M.	1,159	492
Silver ore	Net tons		
Wheat	Bushels	921,466	
Unclassified freight	Net tons.	6,586	842
Passengers	Number	48	37

WEST BOUND.

Item.	Designation.	Season of 1894.	Season of 1895.
Coal, anthracite	Net tons	27,398	
Coal, bituminous	" "	31,052	5,145
Flour	Barrels	36	
Grain	Bushels		
Manufactured iron	Net tons	133	
Salt	Barrels	3,000	3,150
Unclassified freight	Net tons	8,311	2,181
Passengers	Number	108	28

East bound freight, net tons	5,992
West " " " "	7,906
Total	13,898

Remarks: Canal opened April 17, 1894, and April 25 1895.

THE Cunard liners Compania and Lucania have been added to the list of subsidized steamers, their owners agreeing to hold the vessels at the disposal of the Admiralty. In the event of being placed in commission they will be equipped with five-inch breech-loading guns and Nordenfeldt machine guns.

THE MARINE RECORD

ESTABLISHED 1878.

PUBLISHED EVERY THURSDAY, AT 144 SUPERIOR ST., (LEADER BUILDING), CLEVELAND, O.

IRVING B. SMITH, CAPT. JOHN SWAINSON, } . . . PROPRIETORS

BRANCH OFFICE:

CHICAGO, ILL., ... 238 Lake Street.

THOMAS WILLIAMS, Associate Editor.

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Invariably in advance.

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CLEVELAND, O., MAY 9, 1895.

THE general superintendent of the U. S Life Saving Service asks for sealed proposals for furnishing supplies to the department for the fiscal year ending June 30, 1896.

GEN. O. M. POE holds strictly to the fact that precipitation alone rules the level of the lakes and relative to the present low stage of water he does not expect an early rise owing to the unusually dry spring which we have had. Denuding the land of trees is one of the principal causes of irregular fluctuations.

IF the remark attributed to a steamboat pilot on Monday, when he ran down a row-boat in Detroit river is authentic, it is to be hoped that not many line boat pilots are of the same opinion. In this instance the pilot is credited with saying that he had no occasion to alter his helm to keep clear of row-boats. This is an entirely wrong impression as a steamer must at all times keep clear of sailing craft and row-boats nor can there be any excuse for not doing so.

WITH this issue we furnish our readers with the most complete list of appointments of masters and engineers in the lake service that has ever been published. The list includes all of the large lines and steam tonnage though no attempt has been made to embrace the smaller sailing craft, tugs and other miscellaneous tonnage. Our thanks are due to the owners and managers of the principal steamship lines for their courtesy in rendering us assistance in completing this list at the earliest possible time. There are, of course, changes being made regularly, and some few appointments are not yet settled, but the list as arranged in alphabetical form in the accompanying supplement, will no doubt be found of great value to those engaged in a business way with the masters and engineers of lake steamers.

SOMEONE has said that "variations are charming," but dredging contractors seem to be the most inconsistent kind of prevaricators that we can run across at this time. In the case of dredging at Cheboygan Harbor, Mich., one firm asks for 35 cents per cubic foot, while another firm more distant from the field of operation asks only 14 cents and still another is willing to furnish bonds that. the work will be done satisfactorily for 12 9-10 cents Again, at Saginaw, Mich., 45 cents per cubic foot is the figure which a prominent dredging contractor thinks the work could be done for, while another firm equally reliable only wants 30 cents a foot. Perhaps the greatest difference comes in on the bids to dredge the mouth of Saginaw river and on this contract 50 cents is bid and from that sum the figures are finely graduated down to 23 cents a foot. It would appear that the dredging contractors ought to get together or they will "kill the goose that lays the golden eggs" on the other hand, perhaps they are too close together already and "blind" proposals are being sent in to the government officers so as to influence the placing of contracts when a "divvy" can be made with the unsuccessful bidders. The officers of the Corps of Engineers, U. S. A., in whose charge the improvement and conservancy of rivers and harbors is placed are fully alive to the tactics of dredging contractors, and it is not likely that a veil can be drawn over their eyes when receiving bids for dredging.

THE CHICAGO CANAL.

The pressure that has been brought to bear on the government relative to the appointment of a commission to ascertain what effect, if any, the Chicago drainage cana will have on the level of the lakes has so far succeeded that Gen. O. M. Poe, Corps of Engineers, U. S. A. in charge of engineering projects in the northwest division and Major Ruffner, Corps of Engineers, U. S. A. stationed at Buffalo, assisted by Capt. Marshall, U. S. A., stationed at Chicago, will report on the canal project to the Chief of Engineers.

It is known that Maj. Ruffner believes that when the canal is put in operation the level of the lakes will be materially lowered. The commission which is to make the investigation was appointed at the request of the Lake Carriers' Association, and other bodies. As a matter of course, Chicago does not believe that Maj. Ruffner's conclusions are warranted by the facts. The Chicago Journal points out that there are constant variations in the lake levels, and thinks that by comparison "the three inches of fall which engineers say will be produced by the drainage canal are infinitesimal. A summer breeze has more effect on the Straits than will be exercised by the drainage canal, even when it is enlarged to carry 600,000 cubic feet of water per minute out of the lake and down to the gulf."

The members of the commission are without doubt aware of the fact that the work which they have to perform is no easy task. All possible data for each month throughout a series of years will need to be taken into consideration and the fluctuation of levels from all natural causes thoroughly inquired into so that any compensatory conditions that might have existed to regulate or control certain levels will be given due weight in their findings. It is questionable if sufficient scientific observations and similar data can be secured so as to render the conclusions which the commission may arrive at beyond the criticism of those who have worked out a result showing an annual decrease of levels through the vast volume of water sent through the big ditch. The question of a permanent set and drift in the form of either surface or under currents is a feature also deserving of attention and about which lake seamen ought to be advised at the earliest possible date.

One of the final results of the work of the commission will no doubt be to limit the flow of water through the canal to a stated quantity during certain months of the season thereby establishing a minimum and maximum outflow according to the mean level of Lake Michigan as deduced from the official records kept for many years past.

The interests on both sides are great, at the same time it is a foregone conclusion that the great commercial and transportation lines so widely developed in lake commerce must not be endangered even by the lack or loss of one inch of water in the links connecting the several large basins, as the carrying ability of deep draft vessels are not in the least influenced through the lowering of the mid-lake sections but rather controlled by the lowest depths found in the rivers.

Major Ruffner's investigations of the outflow of Lake Erie past Black Rock led him to the conclusion that the average discharge of the river was a little over 200,000 cubic feet per second. This tallies closely with the estimate made by Prof. G. Frederick Wright of Oberlin, the eminent geologist, who has made a special study of the basin of the Great Lakes in connection with his investigations of the geological evidences of the glacial age in America. Prof. Wright says the total drainage area of the four upper lakes is 250,000 square miles, with a rainfall of about thirty-one inches. On a liberal estimate of a discharge through the Niagara River of from 35 to 40 per cent of this the outflow by that channel would be in the neighborhood of 200,000 cubic feet per second, which is the estimate of Major Ruffner, reached by a different method of investigation. The Illinois legislation, authorizing the construction of the canal from Lake Michigan to the Illinois River, requires a discharge at the opening of not less than 10,000 cubic feet per second, or about 5 per cent of the quantity now flowing down the Niagara River. The canal engineer, basing his estimate on imperfect data ante-dating the investigations of Major Ruffner, said the level of the lakes would be lowered not to exceed five inches, and might not be more than two inches. Major Ruffner holds that a diversion of 5 per cent of the outflow would cause the water in the connecting channels between the lakes to sink nine inches. This of itself would be a very serious matter for the navigation of those connecting channels, which the United States is now spending millions to deepen and would have to spend many millions more in order to overcome the damage inflicted by the Chicago diversion, but worse things are threatened. The engineers in charge of the canal talk freely of diverting 15 or 20 instead of 5 per cent of the water of the Great Lakes into the Illinois, so as to make that river and the Mississippi navigable at all times for ocean going steamers. The United States government, which has spent so much money to deepen the lake waterway, is expected to spend more in aiding to shallow it by supplementing the work of Chicago and the state of Illinois with a series of improvements in the Illinois River.

Well! As we opposed this project several years ago, and were called down by eminent talent for doing so we are not a little gratified to find that it is now becoming a pertinent if not a most important question and the subject should not be allowed to rest until all is known that can be known relative to the drainage canal effect upon lake levels.

UNUSUAL STRANDINGS.

Several large lake steamers stranded in a somewhat unaccountable manner during the past few days on well-defined dangers and the occurrences are the more remarkable as in each case the vessels were in charge of well known and experienced shipmasters. It is to be expected that the errors of compasses will not be known exactly on the first trip in the spring and it is just possible that no opportunity to determine same by means of amplitudes, azimuth's or true bearings of well known objects had been offered during the few days consumed in making the first trip.

It would be of the greatest value to lake navigators if the causes leading up to these several casualties could be shown. The first conclusion that nine out of ten men would jump at is compass errors and there can be no doubt that an insecure course was steered in each case, but, while allowing all due corrections on the compass who is to say that with the clearing of the ice and the consequent increased flow or motion of water through the several lakes that strong under-currents does not prevail and thus, with an adjusted compass and all known corrections duly applied thereon so as to shape a secure course, an unknown factor is brought to bear in the form of a three or four mile per hour current prevailing only in the early days of the opening of navigation and therefore less likely to be observed throughout the busy season when hundreds of craft are passing over the same courses daily.

IT would appear that steam towing machines will soon come into general use on the lakes on account of their superior advantages and economy over any other method of towing. It has been said that the use of consorts for transportation of freight is still in its infancy, if this is so, and we have no reason to doubt it, owners and builders would do well when they are making out specifications for new tonnage to provide a place ready for such a mechanical towing machine so that it could be fitted at any time it was thought prudent to carry one. There are numbers of large steel and wooden steamers now afloat that would find it rather expensive to re-arrange their deck-houses and fittings so as to accomodate one of these machines made especially to handle flexible steel wire tow ropes.

FREIGHTS.

Owing to the strike at the mines, there is little or nothing doing in coal freights, and the rate on anthracite is so low at Buffalo, besides the fueling question cropping out, that up cargoes are at a standstill, and liable to be so for some time yet. A few charters are reported at 15 cents Duluth, 30 cents Chicago. There has been a fairly good demand for grain carriers both at Chicago and Duluth, 2¼ cents being the present rate from the head of the lakes, and 1 cent on oats, 1⅛ cents on corn and wheat from Chicago.

The wheat receipts at Superior for April were phenomenal for that month. There were 3,286 cars received against 912 in April, 1894.

Ore rates are firm at 75 cents from the head of Lake Superior, 60 cents Marquette, and 40 cents Escanaba.

THE WEEK'S LIST OF CASUALTIES.

The list of wrecks and mishaps was greatly swelled during the past week by the low water which caused frequent groundings. The chief loss, however, was the steamer N. K. Fairbank, which was burned to the water's edge on the morning of the 3d, after running ashore in a dense fog ten miles above Port Colborne. She had on some 50,000 bushels of corn, Chicago to Ogdensburg, valued at $30,000, and was fully insured. The Fairbank was owned by Capt. John Bartow, of Cleveland, and insured for $30,000 through Smith, Davis, & Co., of Buffalo. On behalf of the underwriters, the wreck and cargo were sold, on the 7th, to Carter Bros., of Port Colborne, the cargo for $425, and the steamer for $250. The hull is not thought to be of much value, but had to be bought to make sure of the cargo.

The steamer Selwyn Eddy stranded on the 2d at the head of Hay Lake channel, where the Pillsbury was unfortunate last season. She was released after lightening, and later examination in dry dock at South Chicago showed she had sustained no serious damage.

On the following day the steamer Kearsarge struck near where the Eddy had been aground, and a large hole in her forward tank is the result. Considerable lightering was necessary to effect her release. The next to be caught was the North Wind, bound down, and she also got a hole in compartment No. 1 and was compelled to lighter off. This occurred on the 4th.

On Monday the 6th, the Northern Wave, bound up, struck at the same spot. She was not released until Wednesday morning and got off by shifting cargo, the starboard compartment No. 2 is full of water.

All these accidents in the Sault have been attributable to the fact thas the black can buoy has not been in place. The buoys were maintained last year at a cost of $4,000; this year only $1,000 is the contract price. It is claimed that the service rendered at this figure is inadequate. This buoy was placed Wednesday, after its absence had cost the vessel interests $50,000.

The steamer Parks Foster got aground on Poverty Island shoal last Friday and was released by the Ira Owen. She also grounded slightly on Grosse Pointe coming down. After discharging her cargo thirteen bottom plates will have to be removed.

The steamer A. A. Parker got ashore on North Manitou Island Saturday and jettisoned 20,000 bushels of grain, when the wrecking tug Favorite released her.

The steamer A. McVittie got ashore Monday in Hammond's Bay, below Cheboygan. She was bound for Chicago. The wrecker Favorite released her the following day. She was leaking badly, and was patched up by a diver at St. Ignace, and expected to proceed for Chicago with steam pumps aboard.

The steamer I. W. Nicholas stranded on Caribou Island Sunday, coming down, and had to jettison 500 barrels of flour. Her bottom is probably damaged.

The small steamer Guide burned at Oswego Friday night. She was owned by Emma B. Newman, of Cape Vincent and was valued at $8,000.

The steamer E. M. Peck, towing a whaleback barge, stranded on Thirteen Foot Shoal, 3¾ miles west of Spectacle Reef, Lake Huron, at 10 o'clock Monday night. The barge cleared the reef. The Peck was released at 8 o'clock Wednesday morning apparently uninjured.

The old river steamer Samson, which has plied on Grand River for 15 years, has broken in two and sunk. She was valued at $2,000, with no insurance.

There were numerous cases of stranding at Grosse Pointe during the week, but all the boats were released without especial delay. The Tokio got aground at Bar Point Monday night.

Wrecker Harry Baker has got the sunken steamer Sakie Shepard into shallow water.

The schooner Agnes, sunk last winter by the ice at St. Joseph, has been raised and a large hole found in her side. She will be repaired at once.

The steamer Lloyd H. Porter shipped a quantity of water shortly after leaving Ludington last Thnrsday, and was towed back in a water-logged condition. She has been pumped out. It is said that she had too much of a deck load.

CONTRACT FOR A NEW STEAMER.

The firm of F. W. Wheeler & Co., West Bay City, Mich. has contracted to build a steel steamer to the order of Eddy Bros. and Shaw of Bay City. Her general dimensions will be as follows- 384½ feet overall, 366 feet keel, 44½ feet beam and 26½ feet molded depth. Engines, triple expansion, cylinders 22, 35 and 58 by 44 inches stroke, Scotch type boilers. She will be built partly on the channel plate system with cellular bottom and equipped with a full electric lighting plant. Capt. John Shaw says she will carry three pole spars.

OBITUARY.

CAPT. THOMAS DOBBE.

Capt. Thomas Dobbe, of Oswego, died at that port Saturday, at the age of 80 years. Capt. Dobbe was one of the best of the earlier lake navigators, being generally looked up to both for his high personal character and for his exceptionally fine judgment in the affairs of the lakes.

Capt. Dobbe was born in Utica, N. Y., but settled in Oswego, in 1840. He had learned the trade of shipbuilder on the coast, and began to work in Doolittle's yard at Oswego, N. Y., as a journeyman, although he soon acquired an interest. He worked on the steamer Vandalia, the first propeller that was ever built, and was a fellow workman with Ericsson, who later became famous by his invention of the Monitor in war times Capt. Dobbe then built the schooner Odd Fellow on his own account. She was then the largest vessel that passed through the Welland Canal, and her large cargoes netted her owner a snug fortune. He then foresaw that the growth of lake commerce would necessitate the construction of harbor tugs, and proceeded to build the first tug on the lakes, in 1851. She was a side-wheeler, and her name was the S. Howard. He afterwards built the tug Orate Robbins, and continued to build tugs for a number of years, always keeping ahead of the times. The last tug he built was during the civil war and he was named her the Charles Sumner, in honor of a man for whom Capt. Dobbe had great respect and admiration. He sailed her a number of years, and then retired from business about 1875, with a comfortable fortune.

Capt. Dobbe was considered by his colleagues in vessel ownings and shipbuilding circles as one of the very first authorities on all matters in admiralty, and he acquired considerable note as an insurance adjuster, his keen business talents and fine sense of honor winning him admiration everywhere. A brother is still living in California, and one child survives him, Mrs. Wm. D. Allen, of Oswego.

FLOTSAM, JETSAM AND LAGAN.

The steamer City of Owen Sound will take a cargo of deals from Escanaba to Quebec, whence it will be shipped to Liverpool.

The relatives of Engineer McClure and C. H. Stines of the ill-fated Chicora crew, have become satisfied that the body found at New Buffalo is neither of these men.

The steam yacht Sparta has been sold by L.W. Welsh, to people on the coast, and left Grand Haven for Buffalo and the Erie canal last Saturday. She measures 24 tons gross.

The trouble at Marquette has, it is thought, been settled by the Lake Carriers leaving the trimming to the South Shore R. R. Co. The old men will do the work, but general manager Fitch will employ superintendents.

General agents of the insurance companies have generally refused to accept grain insurance rates adopted by the Chicago board of marine underwriters on A 2 vessels. They are demanding a rate of 40 cents to Buffalo and refuse to accept the board rate of 25 cents.

Lieut. S. M. Landrey, resident inspector of the Ninth and Tenth Districts of the United States Life-Saving Service, called upon Supt. Chapman this week, and conferred with him about the stations in their district. He and Supt. Chapman will make a tour of inspection of all the stations.

The Graham & Morton Transportation Co. has closed a contract with Fred Minier, of Saugatuck, to organize a second searching party to search for the sunken hull of the Chicora. He will begin work in a few days, and will drag from Saugatuck to South Haven first. The first party is still at work.

Special orders have been issued to Maj. E. H. Ruffner, O. M. Poe and Capt. Wm. L. Marshall by the Secretary of War to assemble at Chicago, Ill., on the call of the senior member to consider and report upon the probable effect of the operation of the Chicago Drainage Canal upon the lakes and harbor levels.

CORRESPONDENCE.

☞ We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

THE OLD WELLAND CANAL.

SOMBRA, ONT., May 7, 1895.

To the Editor of The Marine Record:

Replying to the query from one of your Chicago subscribers asking for the length of the old Welland Canal locks. I may say that in 1836 I went through to Chippewa one mile above the Niagara Falls and locked up seven miles to Port Robertson. I was then in the schooner Adelaide of Ashtabula and her dimensions were 75 feet long, 19 feet, 8 inches beam and draft 6½ feet and we found it very close work to get through the old locks. The locks were 80 feet from mitre to mitre, 20 feet wide and carried 7 feet of water. The longest schooner that ever locked through was the Columbia 78 feet in length and they had to hew the locks to allow her to crowd through and she was worked stern first so as to gain a little more length. The schooner Rose of Kingston was considered a fair canal schooner then she carried 3,600 bushels. The schooner Liverpool of Kingston was the next longest vessel to go through. In 1837 vessels entered at Port Colborne and had to tow with oxen taking four days to pass from Lake Erie to Ontario. I am positive that 78 feet was the longest that could or did lock through as the lower gates swung into the lock and some room had to be left for them to work.

CAPT. CHARLES GALE.

CORRECTION OF COURSES ON THE LAKES.

FERRYSBURG, MICH., May 7, 1895.

To the Editor of The Marine Record:

While our charts for the lakes may be regarded as among the best the world can furnish, there is yet a peculiarity about them by which the average shipmaster is liable to fall into error indeed, it is not improbable that every day during the season of navigation, we may see vessels steered to wrong courses on the lakes.

Then why not change our charts for the type used at sea, the Mercator chart that does not possess this peculiarity.

Before this question can be answered properly we must consider the two types of charts, with regard to their properties and our wants.

The Mercator charts are peculiarly adapted to represent great extent of area in the direction of longitude, but they are limited in the direction of latitude—about 70° to 80° being the practical limit. The Mercator chart gives only approximate distance, except by calculation and this is its chief defect for use on the lakes where an accurate knowledge of distance is of such vital importance, at times. Our shipmasters except those that come from the sea would be hopelessly lost with a chart that did not afford distance by the simple application of scale and dividers.

But this chart affords one kind of course with the greatest facility. We have only to join the points of departure and destination with a right line and run the angle which this line makes with any meridian to the nearest rose for measurement, when we have the course desired. On account of the facility with which course is found on the Mercator chart seamen all over the world have fallen in love with it.

The course furnished by this chart is that known as the Rhumb-line or Loxodromic curve, or simply the rhumb-course. On the chart it is a right line because there the meridians are parallel, but on the surface of the earth this rhumb-course is a curve, concave towards the pole, and it makes a constant angle, *i. e.*, a constant course with all the meridians it may cross, whence it is reversible, *i. e.*, if a ship is run out on any heading, say N. 3 pts. E., the reverse course would be S. 3 pts. W.

Our lake charts, which are mostly on the "conic" projection, afford two distinct kinds of courses yes, three kinds. They also afford distance to the scale and dividers, with the same facility that courses yield to the protractor.

It is the practice on the lakes to take up a course at the end of a right line between two places and run it off by means of a parallel rule to the nearest rose for measurement for the course between those two places. Then if the rose on which the course is measured happen to be

on the meridian of the place where the course was taken up, we have a course known as the "Great Circle Course," a course much looked for at sea by those undertaking long voyages, because it is the shortest line between any two points on the earth's surface.

This course, unlike the rhumb-course, is different at the two ends of the route, *i. e.*, it is not reversible, also it is variable between the two points of departure and destination.

If our courses were taken up and measured on the middle point of the line joining the two places of departure and destination we would have the rhumb-course, precisely as if taken up and measured on the Mercator chart. But this course is not found as readily on our charts as on the Mercator chart, and this is the objection to them. It nearly always requires the use of a protractor, and the introduction of an extra meridian.

If we take up our course at one end of the line joining the two places between which it is desired to sail, and run that course off to the nearest rose, east or west, for measurement, we have the "third" kind of course mentioned above, *i. e.*, a bogus course, a course that is vitiated by the change in the direction of the meridians between the points where taken up and where measured.

On Lake Superior this error amounts to about 73 per cent. of the difference of longitude traversed in running the course to a rose for measurement, thus: Suppose that three or four degrees of longitude intervene between the point where a course is taken up, and the rose where it is measured, then we have an error of a one-fourth point more or less introduced into our course, and this error is different accordingly as the course is measured on the one side or the other, east or west, of the point where taken up. Then, can we wonder that our courses are confusing and unsatisfactory and that they need continuous "doctoring" and "cooking?"

Then, says one, let us change charts. No, says another. We would then sacrifice distance, for the difference merely of the facility of finding courses; better introduce more meridians on our charts and the use of the protractor, and thereby save the indispensable element of distance. We would be merely "robbing Peter to pay Paul" by changing charts, for whether we have the rhumb-course from the Mercator chart or the great circle course from our conic chart, we cannot sail to either without a constant correction of our course, as indicated by the compass. We propose an entirely new method of correction, one that will obviate the danger of mistaking one course for another.

The change in the direction of the meridians between Whitefish Point and Duluth, for the difference of longitude, is 5°. The change of the variation for this distance is 9°, making 14° for the total swing of the compass card between these two points, and the distance in eastings or westings, is about 334 statute miles.

Dividing the total swing of 14° into the total distance we have 334 miles divided by 14° equals 23.8 miles of eastings or westings. to 1° of the swing of the card.

The oblique distance around Keweenaw Point, will make this distance about 6 per cent. greater, bringing the 23.8 miles up, say to 25 miles for 1° of the swing of the card. Then, for every 25 miles made on the route between Whitefish Point and Duluth, as indicated by ships' log, give ship a counterswing of 1° to the south, or for every 35 miles a counterswing of ⅛ pt. to the south.

This is on the supposition that the change in the variation, like the swing in the meridian, is uniform. While this may not be strictly true, it is so nearly so that we may regard it as such. The 35 miles for ⅛ pt. is in this proportion.

It must be remembered that by this method of correcting for the swing of the card, that only the variation at the point of departure must be applied in shaping course.

In the same manner the shipmaster may find the correction for other courses, and tabulate them for use. Thus, from Buffalo to Point Pelee, departure 187 miles, distance 196 miles, bearing, in one course, S. 6⅜ pts. W.; change of variation, 4°; swing of meridian, 2½°; total swing of card, 6½°; distance on both parts of this route for 1° swing of card, 30 miles. Whence on this route the correction or counterswing of card to the south is 1° for every 30 miles, or ⅛ pt. for every 42 miles, as indicated by ships' log.

If the course be measured on the Mercator chart, it will be found about ⅛ pt. smaller than by the conic chart, or say S. 6¼ pts W. and the correction will be for only the 4° change of variation, instead of 6½°.

H. C. PEARSONS.

THE MOSHER STEAM SEPARATOR.

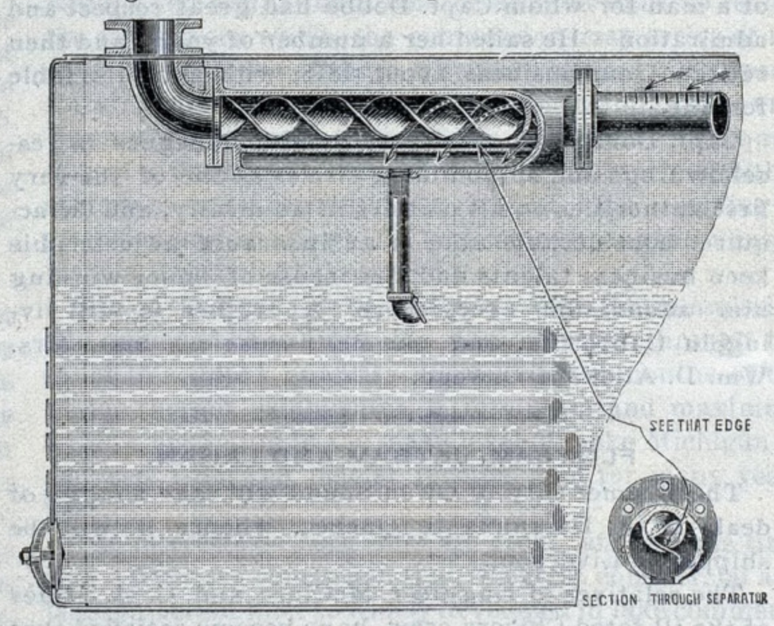
(ILLUSTRATED.)

We illustrate herewith the Mosher patent steam separator for separating all moisture from steam.

The practical man will understand at a glance the principle of operation, which is the utilization of centrifugal force, acknowledged to be the only successful method of separation. The other important feature, and one which is found in this separator, is that of at once isolating all water of separation from the current of steam, thereby rendering it impossible for any water to be again picked up and carried over to the engine.

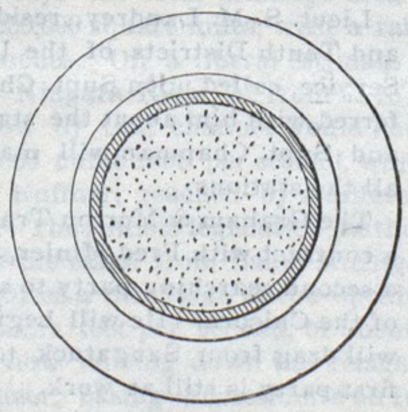
An examination of the engravings will show that the construction of the Mosher separator is extremely simple. As will be seen, the steam conduit consists of a slightly enlarged section of the main steam pipe in which is located a worm or twisted plate. The wall of this conduit is of spiral form with one lip below the other, as is shown by the cross section cut, thus forming a slot through which all moisture is thrown to the collecting chamber below. Thus the steam is acted on many times in its passage around the twisted plate, and the heavier particles being thrown outwardly by centrifugal force, are shaved off and deposited in the isolated chamber below. From which it may be returned to the boiler.

The Mosher steam separator is also made with small collecting chamber, rendering it more compact and



MOSHER SEPARATOR AS APPLIED INSIDE OF A BOILER.

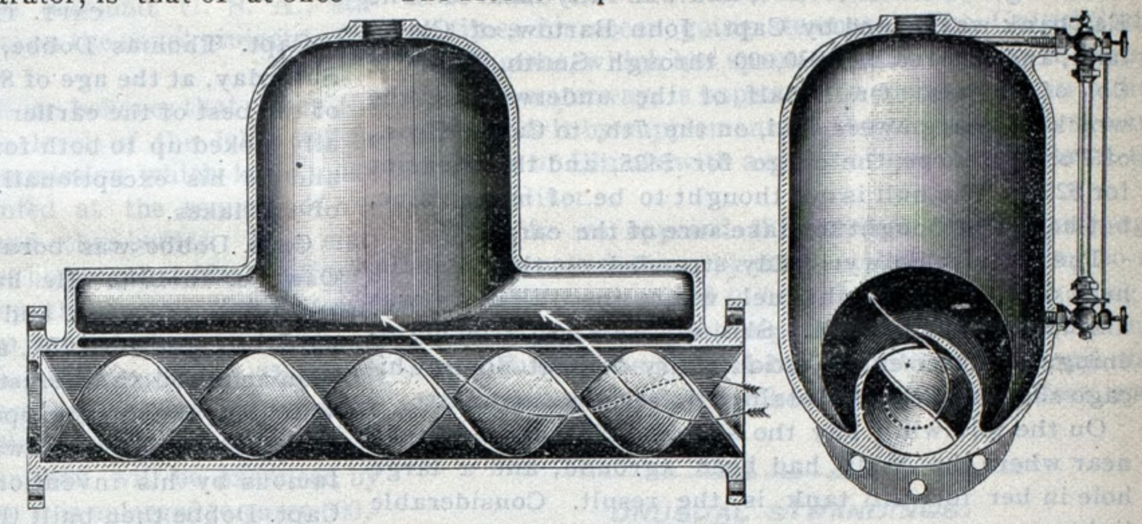
adapted to places where other styles would be excluded on account of limited space. The compact style is peculiarly adapted to many other uses, among which is the extraction of oil from exhaust steam, rendering a considerable saving in oil and in destruction of roofs, on exhaust pipes when steam is used for heating purposes, to keep pipes and radiators from becoming clogged with oil and rendering them inefficient; between cylinders of compound engines to extract water of condensation; between low pressure cylinder and condenser to avoid the clogging up of condenser by oil from cylinders; also in ice and refrigeration plants to extract the oil from ammonia gas, thus providing against the pipes becoming coated on the inside by oil in cylinder lubrication, which renders them very inefficient. In the last named capacity the Mosher separator is the only device that has successfully accomplished this extremely difficult problem of separation.



Pipe full of moist steam before entering the separator, showing small particles of oil and water as they are carried along.

Many, and especially marine boilers, are subject to violent priming or foaming, during which a considerable amount of water is carried out of the boiler. In such cases the trouble may be entirely avoided by the introduction of a Mosher separator inside the boiler, as shown in Fig. 3. The separator, which by reason of its small size may be introduced through the ordinary manhole and connected between throttle and a perforated dry pipe, will prevent any possibility of wet steam leaving the boiler, due to primage, and therefore furnish dry steam at all times regardless of how severe the boiler may "foam" or "prime."

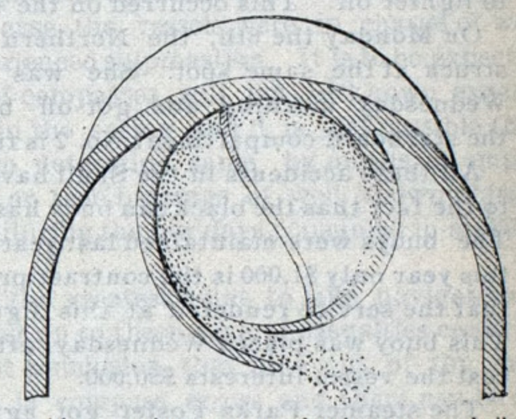
The Mosher separator is built in sizes from one and



MOSHER STEAM SEPARATOR.

one-half inches to any size required. The larger sizes will be constructed of steel castings or boiler plate when so desired and to withstand any desired pressure. Separators are tested for two hundred pounds working pressure per square inch.

These separators are built by Charles D. Mosher, 1 Broadway, New York, who will be pleased to send his "Treatise on the Steam Separator" to all who desire it.

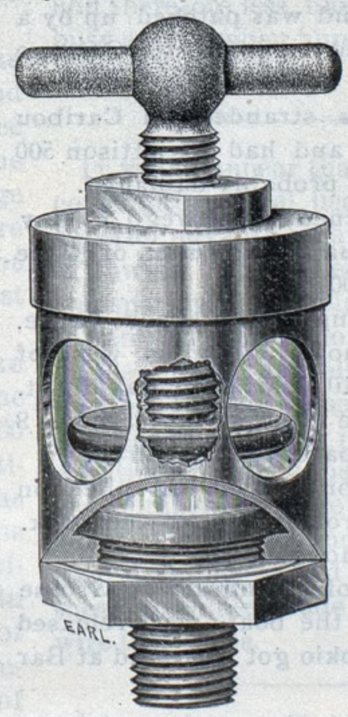


After entering separator, showing water and oil thrown to walls by centrifugal force, and how the foreign substances, the water and oil, are "peeled" or shaved from the dry steam by the action of the "Edge."

A NEW GREASE CUP.

(ILLUSTRATED.)

We illustrate herewith a new grease cup, which has recently been placed on the market by the Penberthy Injector Co., of Detroit, Mich., manufacturers of the famous "Penberthy" automatic injector. The name of this company is a sufficient guarantee as to the quality of any new article which they may put on the market, but the grease cup in question has also many points of superiority over anything of its kind now in use.



First and foremost the body is a glass cylinder, surrounded and protected by an outer brass shell with openings on four sides through which the user can tell at a glance the amount of grease or dope in the cup and know when to refill it so that the journal where it is used never need be dry, unless through carelessness. The plunger by which the grease is forced out from the bottom of the cup is made of a heavy rubber washer protected on both sides by a brass disk, the whole being attached to the bottom of the stem in such a manner that the stem revolves without turning the washer or disks and at the same time no grease can pass up through the center of the washer. The cover never needs to be removed from the cup, as the body of the cup is screwed on to the shank and is removed from the shank to be refilled, therefore there is no chance for any of the parts to be lost or mislaid when the cup is being filled. This cup is meeting with a very rapid sale, and while only placed on the market the first of January and advertised scarcely any since that time yet the manufacturers say that they have been unable to keep up with their orders and are somewhat behind even at the present time, although they started with a fair stock. Circular and price list of this cup will be sent on application to the above company.

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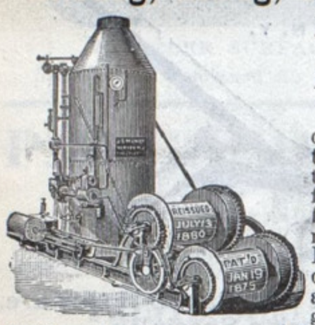

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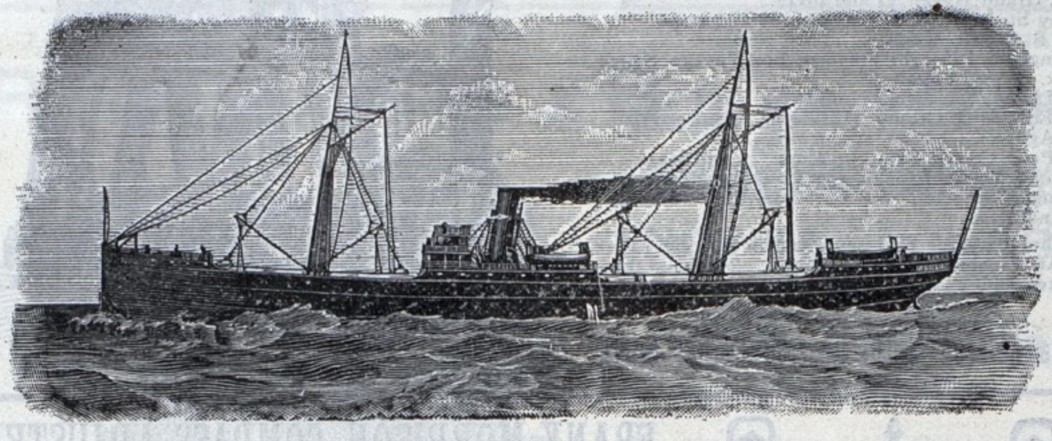

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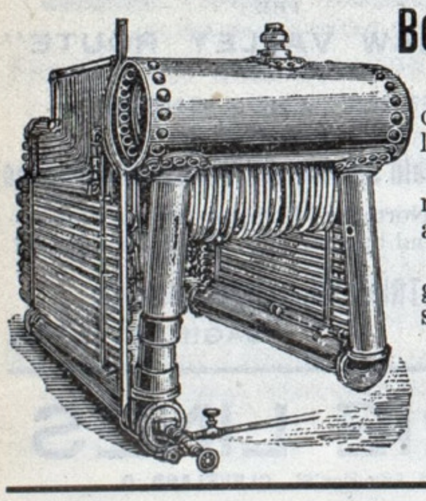

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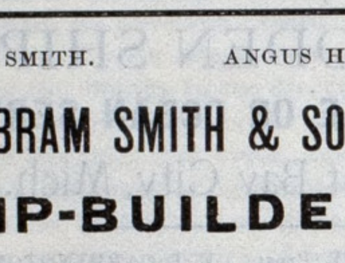

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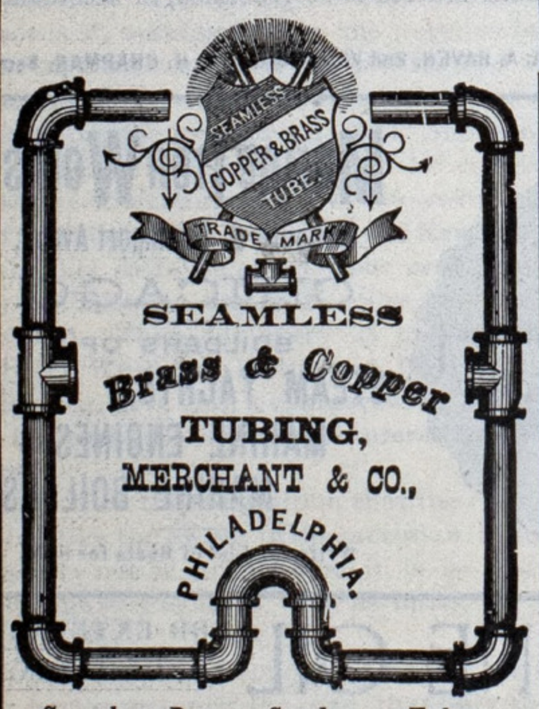

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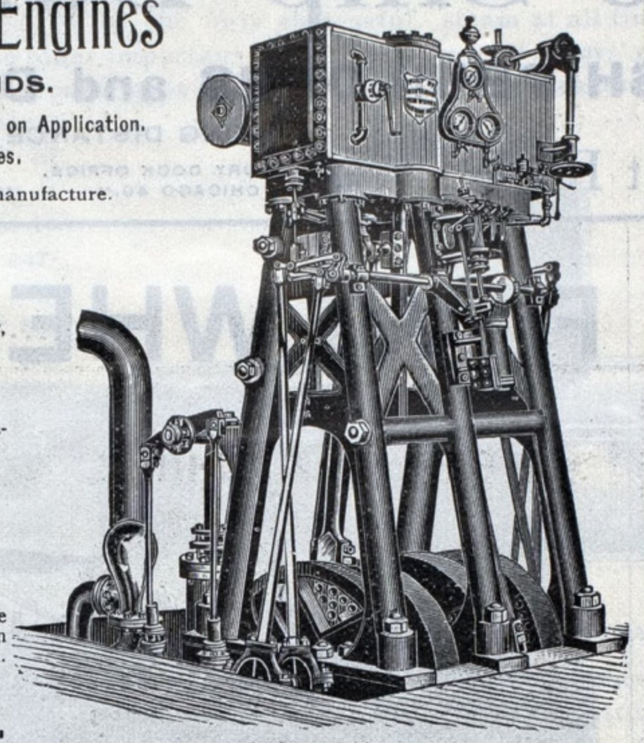

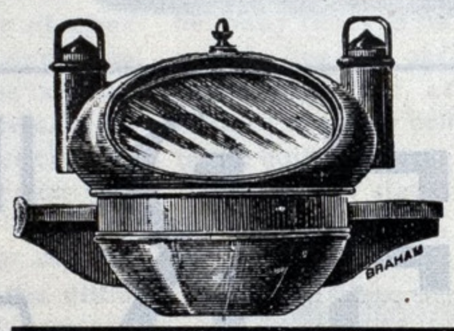

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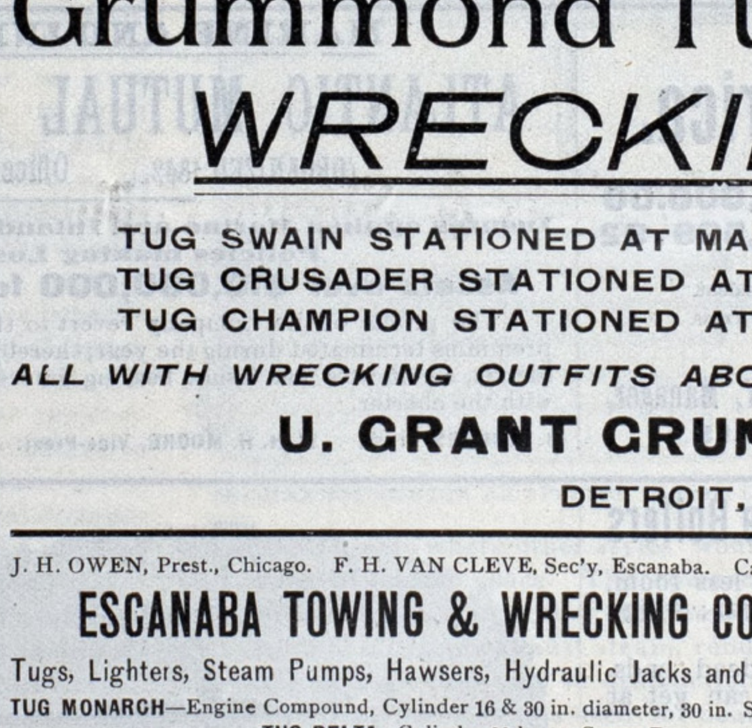

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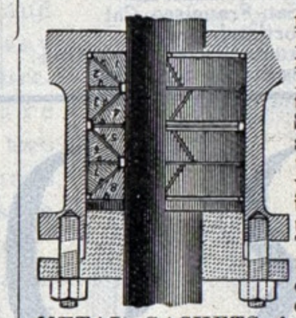

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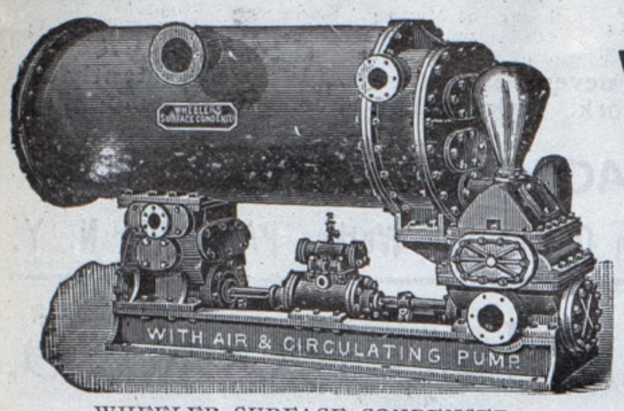

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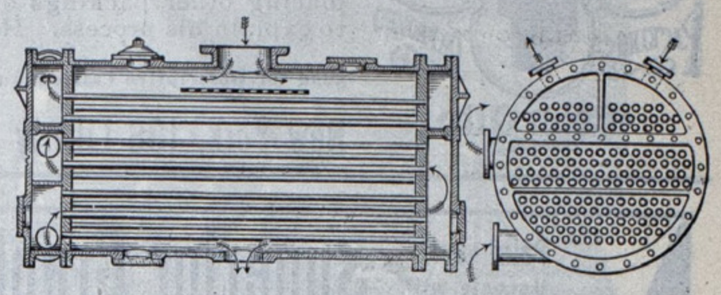

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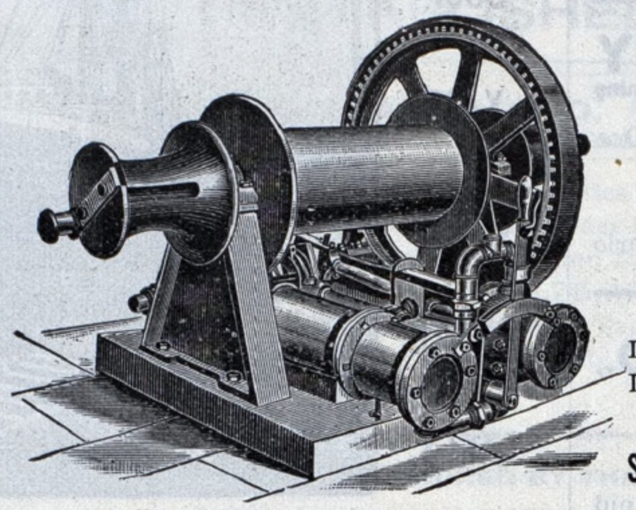

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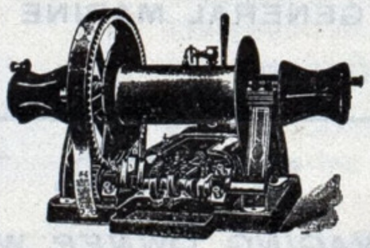

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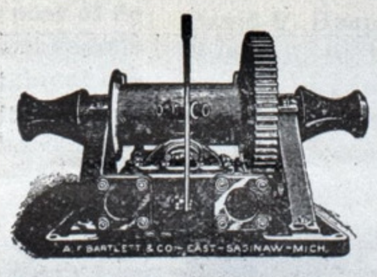

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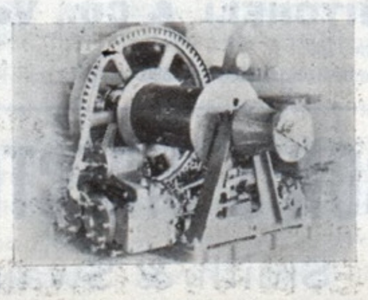

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PROPOSALS.

U. S. ENGINEER OFFICE, 349 Carondelet St., New Orleans, La., May 6, 1895. Sealed proposals for coffer-dam, excavation and piling foundation for lock at Plaquemine, La., will be received here until 12 o'clock noon, June 6, 1895, and then publicly opened. Information furnished on application. JAMES B. QUINN, Major, Engineers. 19-22

U. S. ENGINEER OFFICE, 34 West Congress St., Detroit, Mich., May 8, 1895. Sealed proposals for furnishing all labor, materials and appliances, and removing material from Movable Dam and from 800-ft. Lock Approaches, also for constructing piers for Lock Approaches, will be received here until 2 p. m., June 7, 1895, and then pubiicly opened. All information furnished on application. O. M. POE, Col., Engineers. 19-22

TREASURY DEPARTMENT, U. S. LIFE-SAVING SERVICE, Washington, D. C., April 18, 1895. Sealed proposals will be received at this office until 2 o'clock p. m., of Tuesday, May 7th, 1895, for the construction of twelve 26-foot Monomoy surfboats, six to be delivered in Buffalo, N. Y., and six in New York City. Proposals for either or both lots of boats will be considered. Plans and specifications, together with full information and blank forms of proposal, can be obtained upon application to this office, to the Inspector of Life-Saving Stations, 24 State Street, New York City, or the Superintendent 9th Life-Saving District, Buffalo, New York. S. I. KIMBALL, General Superintendent. 17-18

TREASURY DEPARTMENT, OFFICE OF GENERAL SUPERINTENDENT U. S. LIFE-SAVING SERVICE, Washington, D. C., May 4, 1895. Sealed proposals will be received at this office until 2 o'clock p. m. of Friday, the 31st day of May, 1895, for furnishing supplies required for use of the Life-Saving Service for the fiscal year ending June 30, 1896; the supplies to be delivered at such points in New York City, Grand Haven, Mich., and San Francisco, Cal., as may be required, and in the quantities named in the specifications. The supplies needed consist of Beds and Bedding; Blocks and Sheaves; Cordage; Crockery; Furniture; Hardware; Lamps; Lanterns, etc.; Lumber; Medicines, etc.; Paints, Oils, etc.; Shipchandlery; Stoves, etc.; Tools, and Miscellaneous articles; all of which are enumerated in the specifications attached to the form of bid, etc., which may be obtained upon application to this office, or to the Inspector of Life-Saving Stations, 24 State street, New York City; Superintendent Eleventh Life-Saving District, Grand Haven, Mich.; and Superintendent Twelfth Life-Saving District, Appraisers New Building, San Francisco, Cal. Envelopes containing proposals to be addressed to the "General Superintendent U. S. Life-Saving Service, Washington, D. C.," and marked on the outside "Proposal for Annual Supplies." The right is reserved to reject any or all bids, and to waive defects, if deemed for the interests of the Government. S. I. KIMBALL, General Superintendent. 19-21

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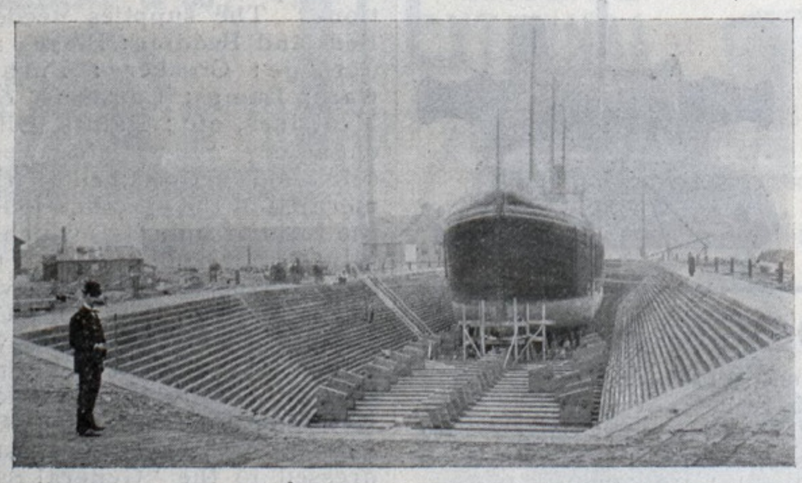

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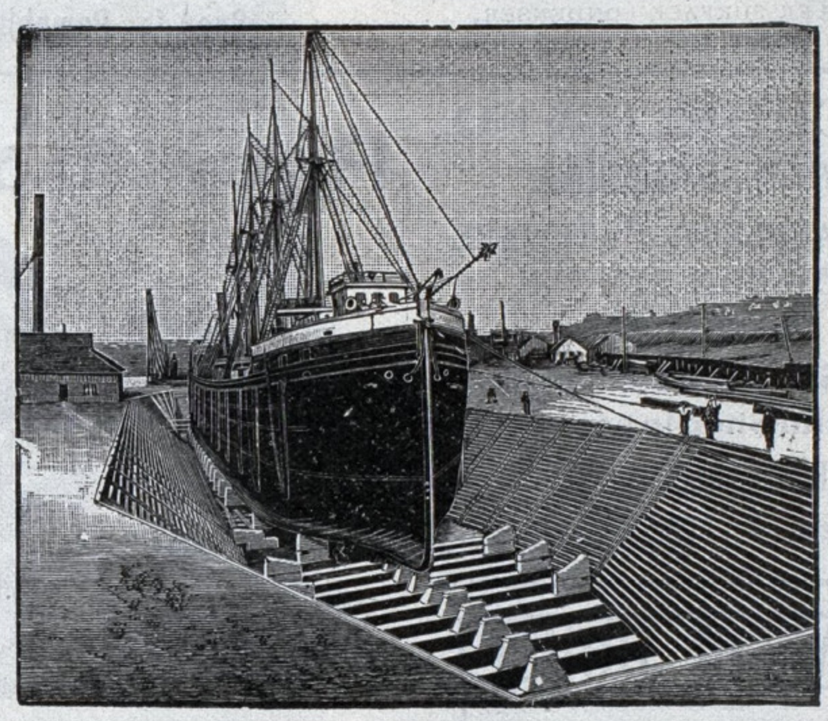

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